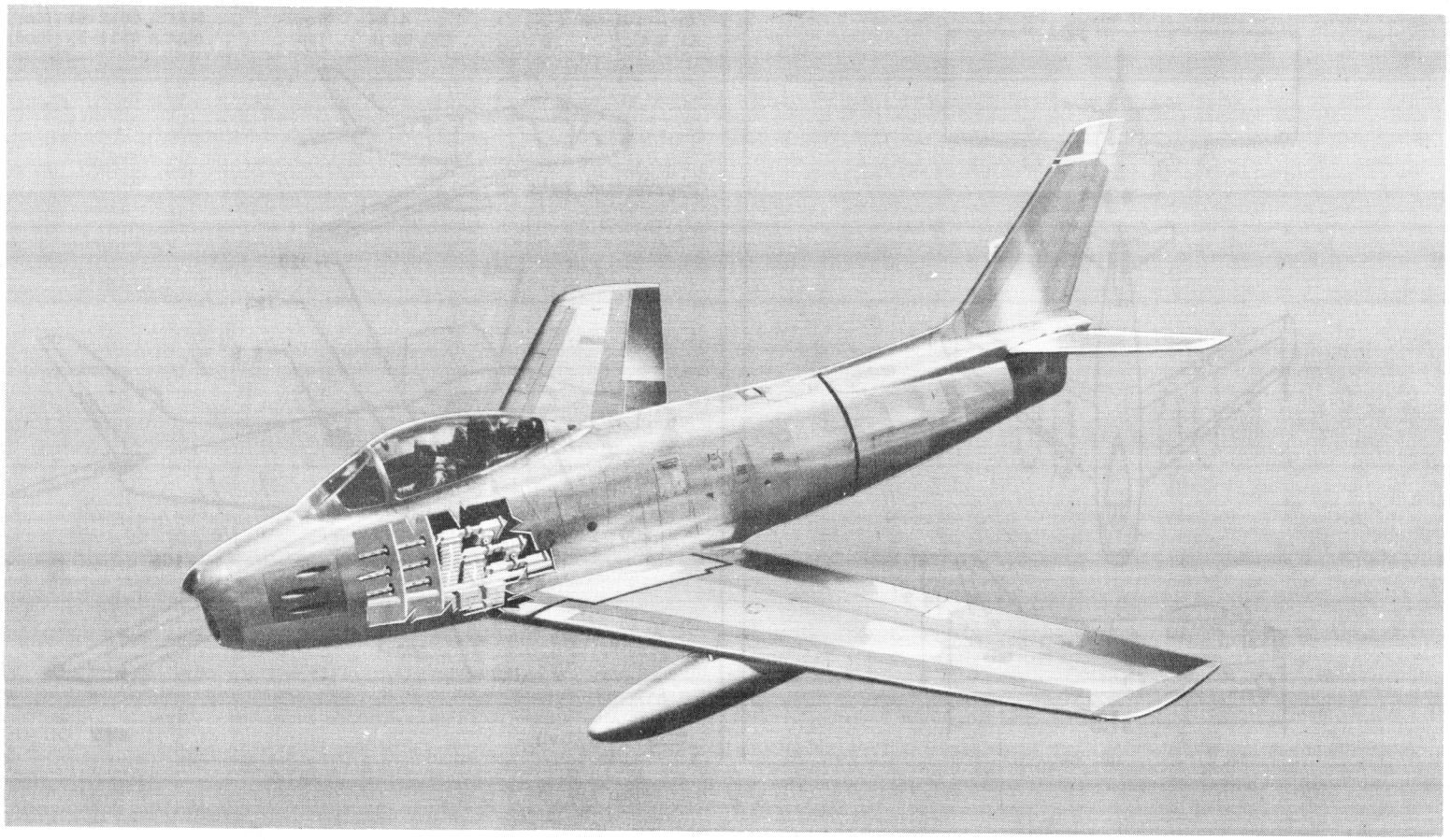
A1
F-86F/char

SERVICE



Standard Aircraft Characteristics

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

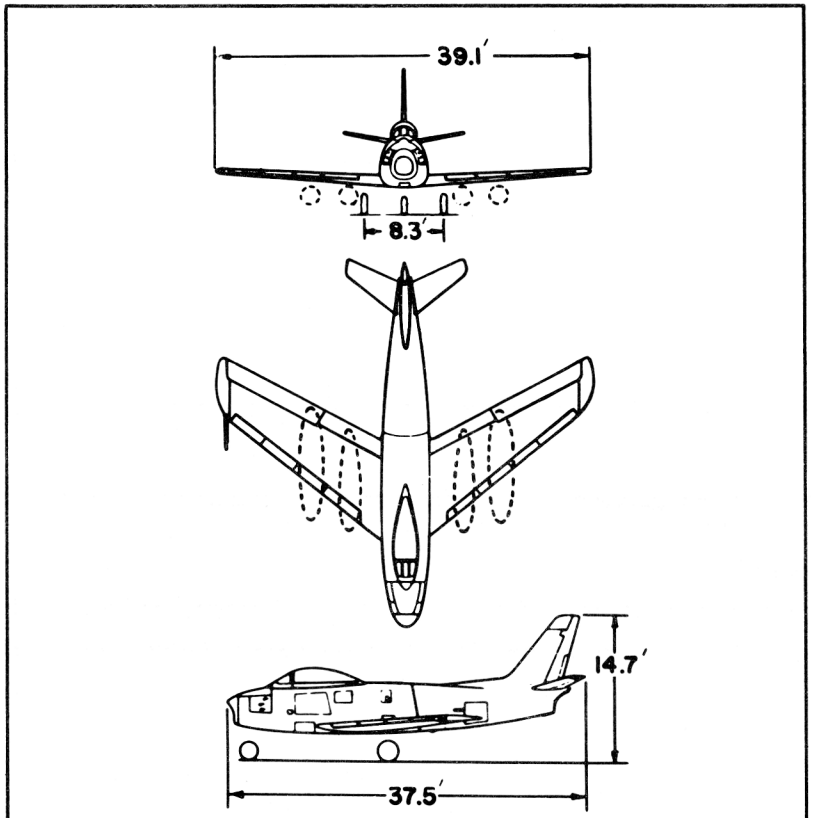
F-86F -25 thru -40

SABRE

North American

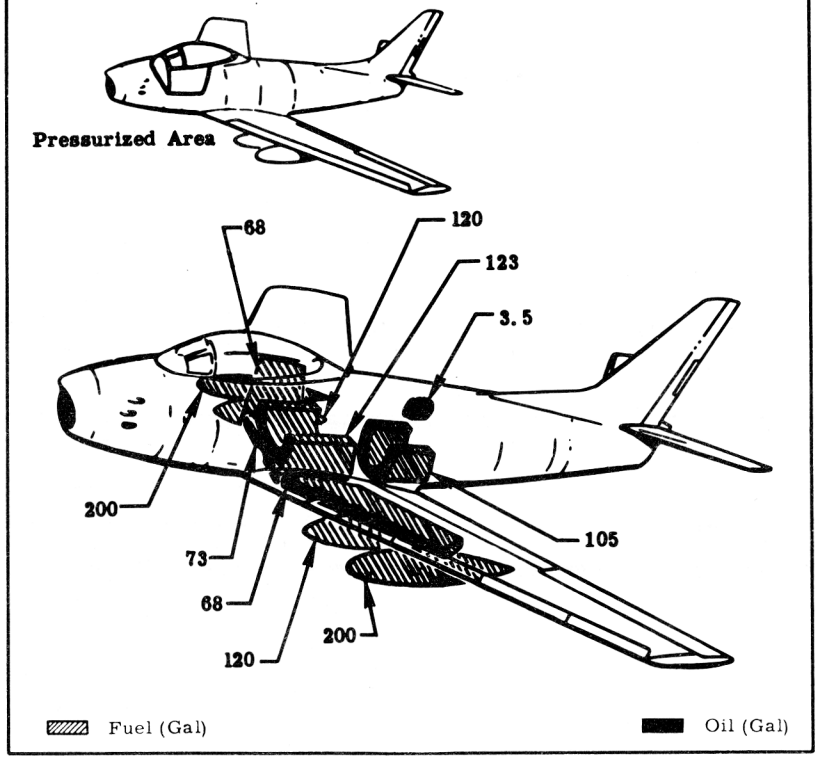
ONE J47-GE-27

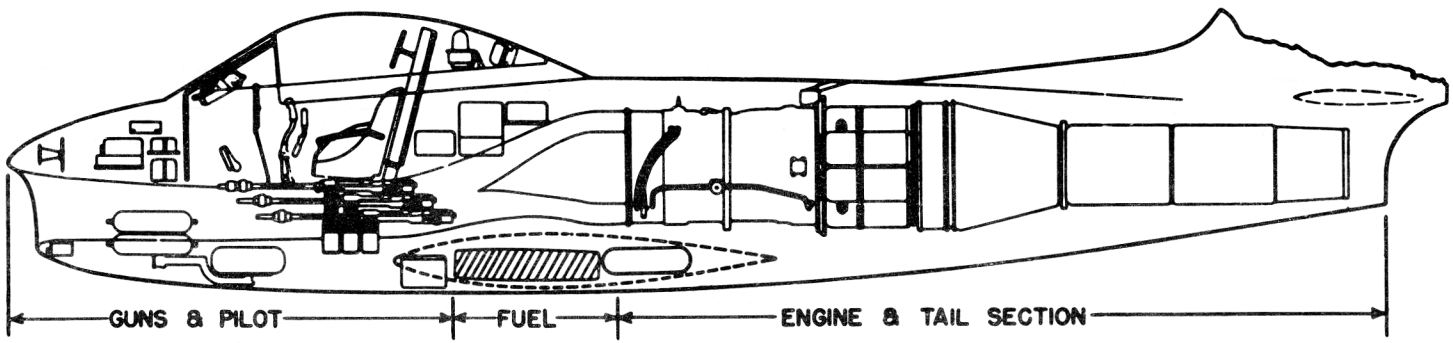
GENERAL ELECTRIC



Wing Area . . . . . 313.4 sq ft
Aspect Ratio 4.88
M.A.C. . . . . 100.66 in

Wing Section
Root . . . . NACA 0012-64 (Mod)
Tip . . . . .NACA 0011-64 (Mod)





POWER PLANT

Nr. & Model . . . . (1) J47-GE-27

Mfr . . . . . General Electric

Engine Spec Nr. E-594a

Type . . . . . Axial

Length . . . . . 148.0"

Diameter . . . . . 39.5"

Weight (dry) . . . . . 2607 lb

Tail Pipe . . . . . Fixed Area

ENGINE RATINGS

S.L. Static	LB	RPM	MIN
Max:	5910	7950	5
Mil:	5910	7950	30
Nor:	5270	7630	Cont

Note: Ratings are with inlet screens retracted.

Mission and Description

Navy Equivalent: None Mfr's Model: NA-176, -191, -203 & -227

The principal mission of the F-86F airplane is Fighter-Bomber.

Special features of this airplane are electrically operated flaps, hydraulically operated speed brakes, hydraulic power-operated irreversible controls with artifical feel for the all-movable horizontal tail and ailerons.

The cockpit is provided with 2.75 or 5 psi differential pressurization, adequate heating and cooling, a jettisonable canopy, an ejection-type seat, anti-G suit provision, and a low pressure oxygen system.

A type A-4 Gun-Bomb-Rocket sight is provided and is used in conjunction with the radar ranging equipment. Provisions are made for carrying either bombs or rockets externally.

The 200 gal fuel tanks carried by this airplane are standard Air Force tanks that have force ejection pylons.

Development

All F-86F-25 thru -35 aircraft are being modified to incorporate the combination slatted-extended leading edge configuration and wing tip extensions. The F-86F-40 aircraft will have these modifications accomplished before delivery.

Contract approved (F-86F-25) . . . . . May 52
First flight (F-86F-25) . . . . . Oct 52
First delivery (F-86F-25) . . . . . Oct 52
Production Completion (F-86F-40) . . . . . Dec 56

WEIGHTS

Loading	Lb	L.F.
Empty	11,125 (C)	
Basic	11,585 (C)	
Design	13,395	7.33
Combat	*15,681	7.0
Max T.O.	†20,611	2.0
Max in Flt	†20,611	5.0
Max Land	†20,611	2.0

(C) Calculated
* For Basic Mission
† Limited by Mission

F U E L

Location	Nr. Tanks	Gal
Wgs*	3	209
Fus*	2	228
Wgs, drop (combat)	2	400
Wgs, drop(ferry)	2	240
	Total	1077

Grade JP-4
Specification MIL-F-5624
*Self-Sealing

OIL

Fuselage . . . . 1 . . . . (tot) 3.5
Grade 1105
Specification MIL-L-6081A

DIMENSIONS

Wing
Span . . . . . 39.1'
Incidence (root) . . . . . 1°
(tip) . . . . . -1°14'
Dihedral . . . . . 3°
Sweepback(25% chord) . . 35°41'
Length . . . . . 37.5'
Height . . . . . 14.7'
Tread . . . . . 8.3'

B O M B S

No.	Class (lb)
WW II (Box Fin)	
2	1000
2	500
2	250
Interim (Coniçal Fin)	
2	1000
2	500
2	250
New Series	
2	1000
2	750
2	500

Max Bomb Load . . . . . 2000 lb

G U N S

No.	Type	Size	Rds ea	Location
6	M-3	.50 cal.	300	Fus, fwd

Gun Camera . . . . . (1) N-9

ROCKETS

No.	Size	Type	Location
8*	5"	HVAR	Wings

*Provisions for 16 x 5" rockets

ELECTRONICS

UHF Command AN/ARC-27

IFF AN/APX-6A

Radio Compass AN/ARN-6

Radar Ranging Equip . AN/APG-30A

Loading and Performance—Typical Mission

CONDITIONS			BASIC MISSION	DESIGN MISSION	AIR SUPERIORITY MISSION	INTERDICTION MISSION	FERRY RANGE
			I	II	III	IV	V
TAKE-OFF WEIGHT		(lb)	18,152	18,152	15,198	20,611	20,048
Fuel at 6.5 lb/gal (grade JP-4)		(lb)	5442	5442	2842	5442	7002
Payload (ammunition)		(lb)	540	540	540	540	540
Payload (external armament)		(lb)	None	None	None	2310 ④	None
Wing loading		(lb/sq ft)	58.0	58.0	48.6	65.8	64.1
Stall speed (power-off)		(kn)	108	108	99	119 ⑤	114
Take-off ground run at SL	①	(ft)	2520	2520	1710	3530 ⑤	3130
Take-off to clear 50 ft	①	(ft)	3770	3770	2700	5080 ⑤	4570
Rate of climb at SL	①	(fpm)	6000	6000	9130	4220	4520
Time: SL to 20,000 ft	①	(min)	4.6 ③	4.8	2.8 ③	7.0 ③	6.6 ③
Time: SL to 30,000 ft	①	(min)	8.9 ③	9.2	5.2 ③	15.5 ③	14.3 ③
Service ceiling (100 fpm)	①	(ft)	41,300	41,300	48,200	34,300	35,400
COMBAT RANGE	②	(n. mi)	———	———	———	———	1325
COMBAT RADIUS	②	(n. mi)	402	519	58	267	———
Average speed		(kn)	460	455	467	425	444
Initial cruising altitude.		(ft)	39,600	39,600	35,000	32,600	33,900
Final cruising altitude		(ft)	45,500	46,100	46,700	45,300	43,600
Total mission time		(hr)	2.11	2.61	.59	1.36	3.04
COMBAT WEIGHT	⑥	(lb)	(15,681) 15,352	15,099	14,212	(15,810) 15,501	13,662
Combat altitude		(ft)	40,900	35,000	35,000	SL	43,600
Combat speed	⑥ ①	(kn)	(492) 513	520	525	(555) 581	505
Combat climb	⑥ ①	fpm)	(570) 1000	1980	2580	(6790) 7870	770
Combat ceiling (500 fpm)	⑥ ①	(ft)	(41,400) 44,300	44,600	47,000	(40,300) 43,300	45,600
Service ceiling (100 fpm)	⑥ ①	(ft)	(44,300) 47,000	47,400	49,600	(43,300) 46,100	48,500
Max rate of climb at SL	⑥ ①	(fpm)	(7030) 8100	8250	9800	(6790) 7870	8850
Max speed at SL	⑥ ①	(kn)	(564) 589	589	597	(555) 581	579
Basic speed at 35,000 ft	⑥ ①	(kn/ft)	(504) 520	520	525	(555) 581/SL	516
LANDING WEIGHT		(lb)	13,435	13,054	13,140	13,591	13,662
Ground roll at SL		(ft)	2330	2270	2280	2350	2360
Total from 50 ft		(ft)	3450	3380	3390	3490	3500

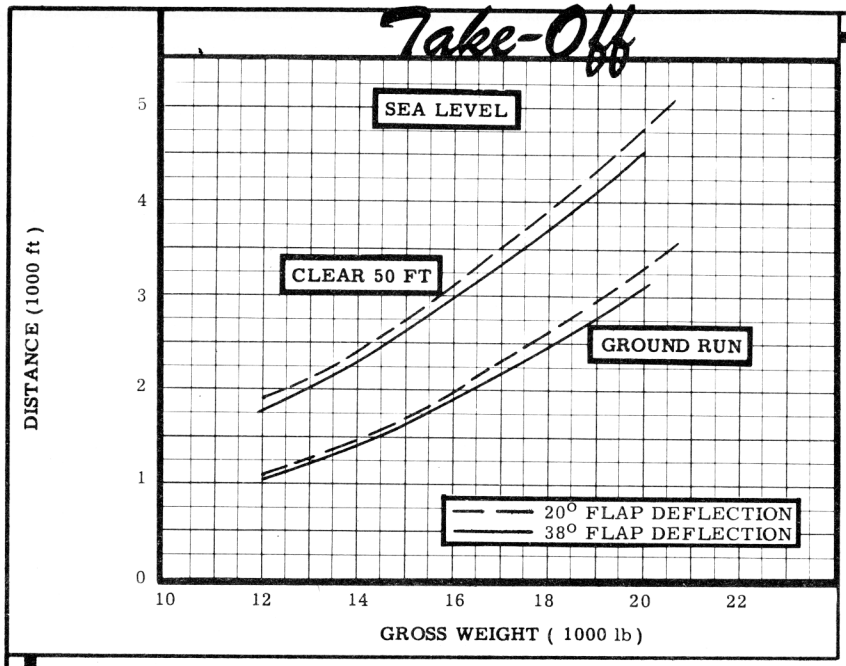
NOTES

① Maximum power
② Detailed descriptions of RADIUS and RANGE missions given on page 6.
③ Allows for weight reduction during ground operation and climb
④ Includes 2-1000 lb GP bombs (T-142 fin)
⑤ 20° flap deflection limited by position of external store
⑥ Combat is initiated with external tanks aboard. Values in () are with tanks on.

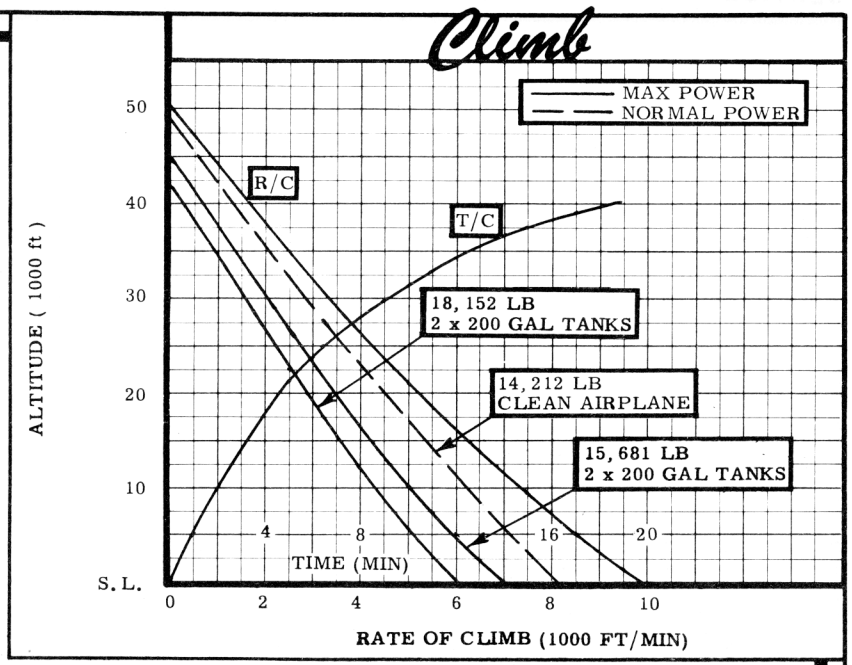
PERFORMANCE BASIS:
(a) Data Source: Contractor's flight test
(b) Performance is based on powers shown on page 6.

SERVICE

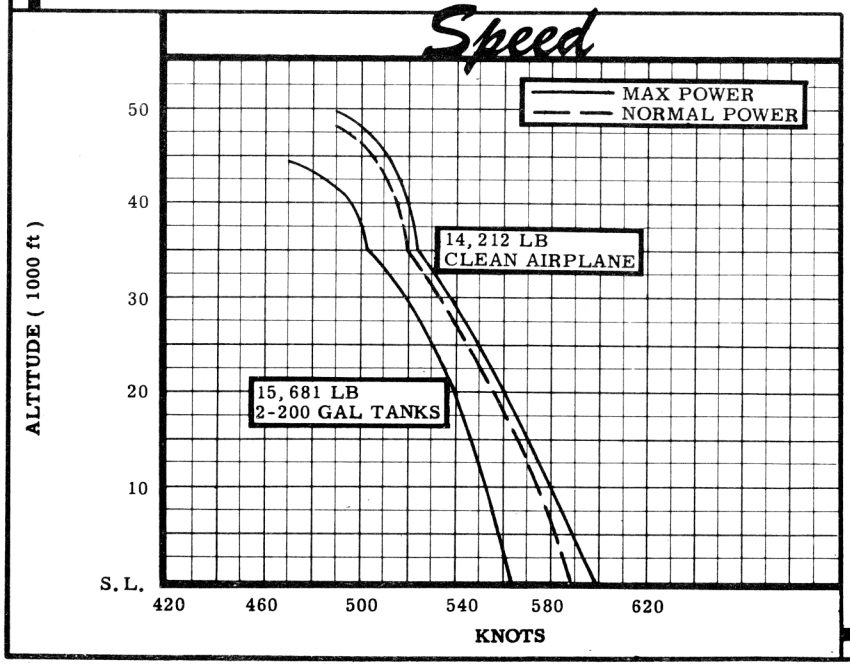
Take-Off



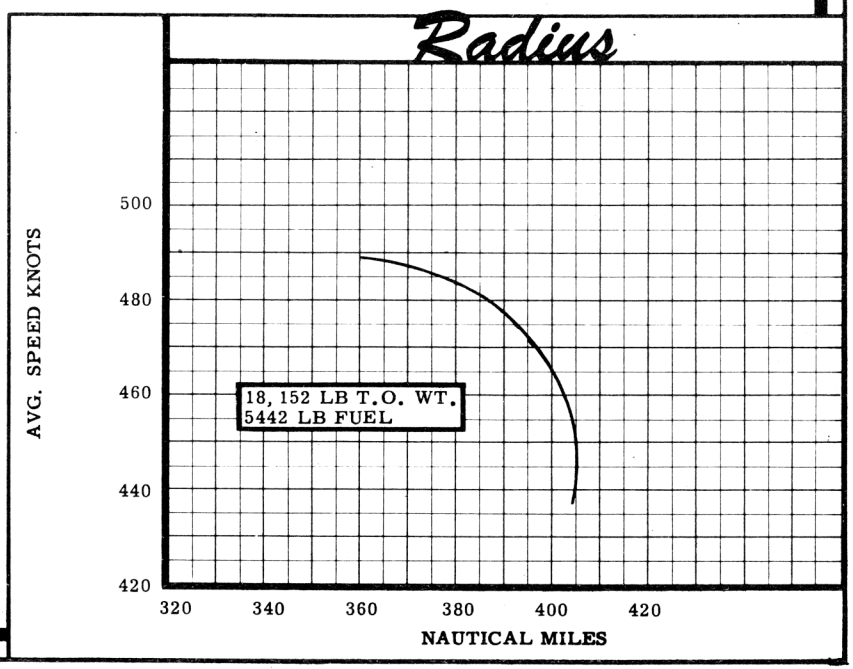
Climb



Speed



Radius



1 OCT 56

F-86F-25 thru-40

NOTES

FORMULA: RADIUS MISSION I

Take-off, climb on course to cruise ceiling with maximum power, cruise out at long range speeds at cruise ceiling to target, combat for 20 minutes dropping external fuel tanks when empty, cruise back to base at long range speeds at cruise altitude. Range free allowances include 5 minutes of normal power at sea level for starting engine, taxi, and take-off, fuel for 20 minutes combat at military power with fuel flow based on 35,000 ft, and a reserve of 20 minutes loiter at sea level at speeds for maximum endurance plus 5% initial fuel load.

FORMULA: RADIUS MISSION II

Take-off, climb on course to curise ceiling with maximum power, cruise out at long range speeds at cruise ceiling dropping external fuel tanks when empty, climb to new cruise altitude with maximum power, cruise out at long range speeds at new cruise altitude to target, combat for 20 minutes, cruise back to base at long range speeds at cruise altitude. Range free allowances include 5 minutes of normal power at sea level for starting engine, taxi, and take-off, fuel for 20 minutes combat at military power, plus 10% of initial fuel for reserve.

FORMULA: RADIUS MISSION III

Take-off, climb on course to 35,000 ft with maximum power, cruise out at long range speeds at 35,000 ft to target, combat for 20 minutes, cruise back to base at long range speeds at cruise altitude. Range free allowances include 5 minutes of normal power at sea level for starting engine, taxi, and take-off, fuel for 20 minutes combat at military power with fuel flow based on 35,000 ft, and a reserve of 20 minutes loiter at sea level at speeds for maximum endurance plus 5% initial fuel load.

FORMULA: MISSION IV

Take-off, climb on course to cruise ceiling with maximum power, cruise out at long range speeds at cruise ceiling to target, descend to sea level and expend external ordnance, combat for 5 minutes dropping external fuel tanks when empty, climb on return course to cruise altitude with maximum power, cruise back to base at long range speeds at cruise altitude. Range free allowances include 5 minutes of normal power at sea level for starting engine, taxi, and take-off, fuel for 5 minutes combat at military power at sea level, and a reserve of 20 minutes loiter at sea level at speeds for maximum endurance plus 5% initial fuel load.

FORMULA: RANGE MISSION V

Take-off, climb on course to cruise ceiling with maximum power, cruise out at long range speeds at cruise ceiling to remote base, dropping external fuel tanks when empty (climb on course to cruise altitude with maximum power after dropping 200 gallon fuel tanks). Range free allowances include 5 minutes of normal power at sea level for starting engine. taxi, and take-off, and a reserve of 20 minutes loiter at sea level at speeds for maximum endurance plus 5% initial fuel load.

GENERAL DATA:

(a) Engine ratings shown on page 3 are manufacturer's guaranteed ratings. The thrust values used in the performance calculations are as follows:

(1) J47-GE-27		
S. L. STATIC	LB	RPM
Max:	6090	7950
Nor:	5590	7370

PERFORMANCE REPORT:

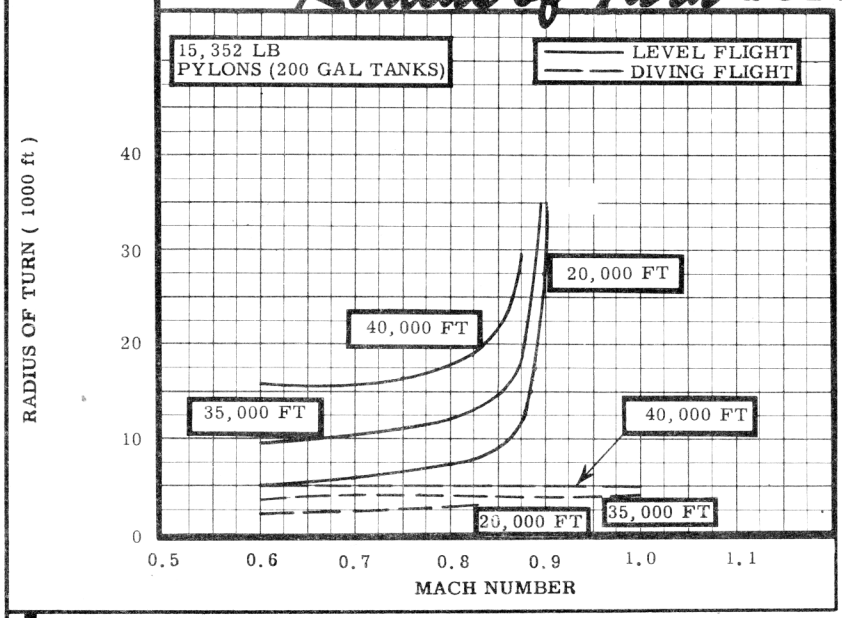
Performance data are based on North American Report No. NA-55-1044, dated 30 September 1955, "Performance Calculations for F-86F Airplane."

REVISION BASIS:

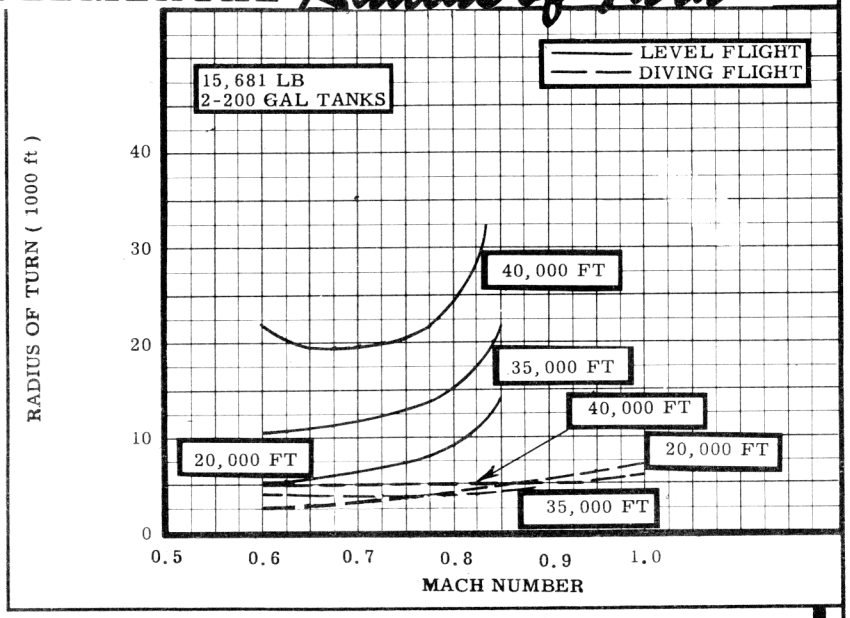
Initial Issue

(30 SEP 55)

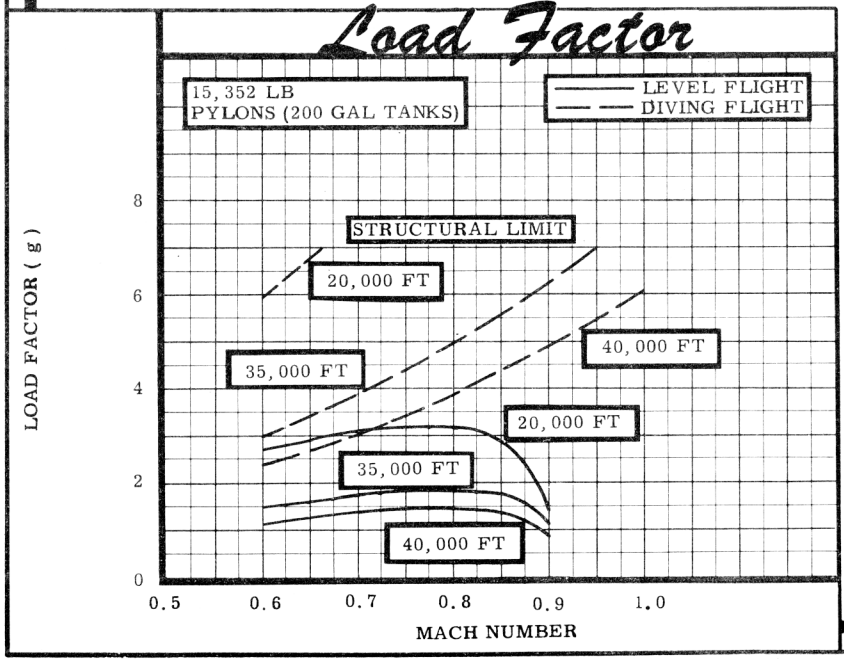
Radius of Turn



SUPPLEMENTAL Radius of Turn



Load Factor



Load Factor